

the first end 22 of the formable shaft 20. The second fitting 106 includes two complementary shaped recesses 108 which are configured to receive the arms 17 to prevent the tracheal tube 12 from being twisted relative to the formable shaft 20 of the instrument 10. Preferably, the second fitting 106 is molded from a polymeric material. However, it is understood by those of ordinary skill in the art from the present disclosure that the second fitting 106 could be made by other methods, such as machining, and the second fitting 106 can be made from other suitable materials, such as stainless steel, if desired.

The instrument 10 may also include a video processor (not shown) in optical communication with the image guide cable 46 to convert the observed image to an electronic video signal. The video signal can then be used to display the image being viewed at the second end 24 of the formable shaft 20 on a monitor (not shown).

In use, the endotracheal tube 12 is placed over the formable shaft 20. Generally, the second end 24 of the shaft 20 extends beyond the second end 16 of the tracheal tube 12 to allow for better viewing through the lens 52. The user holds the housing 40 and inserts the second, distal end 24 of the formable shaft 20 along with the second end 16 of the endotracheal tube 12 into the patient's mouth. The switch 72 is used to turn on the light source 68. The movement of the second, distal end 24 of the formable shaft 20 can be observed through the eyepiece 60. The arrangement of objective lenses 62, 64 is such that the eye relief from the eyepiece 60 is 3 to 15 inches allowing the user to have his eye away from the eyepiece to view the image at the second, distal end 24 of the formable shaft 20 as he manipulates the instrument 10.

An oxygen source (not shown) is be connected to the fluid port 78. The fluid port 78 supplies oxygen through the second or fifth passageways 28 or 34, depending on the position of the actuator 97 for the valve 96. A suction line is connected to the suction port 82. The suction port 82 clears fluid matter from in front of the distal end 24 of the formable shaft 20 by drawing it through the second opening 80 and the third passageway 30. If the wide angle lens 52 becomes obscured with fluid matter (or in the case where the wide angle lens 52 is not utilized, where the second end 50 of the image guide cable 46 becomes obscured), the actuator 97 for the 3-way valve 96 is set in a first position such that the fluid port 78 is in fluid communication with the second passageway 28 via the first tube 98. The flow of oxygen from the second passageway 28 is directed by the baffle member 74 through the first opening 76 across the wide angle lens 52 (or the second end 50 of the image guide cable 46). The flow of oxygen across the wide angle lens 52 clears the fluid matter, allowing the user to again see through the second end 50 of the image guide cable 46. The suction through the third passageway 30 at the second, distal end 24 of the formable shaft 20 also assists in drawing the fluid matter from the wide angle lens 52 (or from the surface of the second end 50 of the image guide cable 46, if used) in combination with the flow of oxygen from the first opening 76.

Once the second, distal end 24 of the formable shaft 20 has been guided through the glottis into the trachea, oxygen can be directed from the fluid port 78 directly into the trachea through the fifth passageway 34 by movement of the valve actuator 97 from the first position, where the fluid port 78 is in fluid communication with the second passageway 28, to the second position where the fluid port 78 is in fluid communication with the fifth passageway 34 via the second tube 100.

If the user has difficulty in inserting the formable shaft 20 through patient's glottis, the slide member 90 can be used to

move the control line 84 to adjust the curvature of the formable shaft 20. Furthermore, a standard laryngoscope, as described in the background, can be used to provide soft tissue clearance. Medicine can also be introduced into the patient through the IV port 104.

After the endotracheal tube 12 has been properly located, the instrument 10 can be withdrawn, leaving the endotracheal tube 12 in position.

It will be appreciated by those skilled in the art that changes could be made to the embodiments described above without departing from the broad inventive concept thereof. It is understood, therefore, that this invention is not limited to the particular embodiments disclosed, but it is intended to cover modifications within the spirit and scope of the present invention as defined by the appended claims.

I claim:

1. An endotracheal tube insertion system including an instrument for insertion of an endotracheal tube into a patient comprising:

- a formable shaft having sufficient stiffness along the entire length to hold a formed shape, the formable shaft having first and second ends, and a plurality of longitudinally extending passageways defined therethrough;
- a housing having first and second ends, the second end of the housing being connected to the first end of the formable shaft;
- an image guide cable having a first end, a second end and a predetermined diameter, the image guide cable being disposed in a first longitudinally extending passageway of the shaft;
- an eyepiece affixed to the first end of the housing and optics associated with the eyepiece, the optics being optically connected with the first end of the image guide cable;
- means for providing light located at the second end of the formable shaft proximate the second end of the image guide cable;
- a baffle member attached to the second end of the formable shaft proximate to a second longitudinally extending passageway, the baffle member having a first opening directed toward the first longitudinally extending passageway;
- a fluid port located on the housing, the fluid port being in fluid communication with the second passageway;
- a second opening located on the second end of the formable shaft on an opposite side of the first passageway from the baffle member, with the baffle member being directed toward the second opening, the second opening being in communication with a third longitudinally extending passageway;
- a suction port located on the housing, the suction port being in fluid communication with the third passageway; and
- a control line having first and second ends slidably disposed in a fourth longitudinally extending passageway, the second end of the control line being affixed to the second end of the formable shaft.

2. The system of claim 1 further comprising a tracheal tube slidably disposed on the formable shaft.

3. The system of claim 1 further comprising a control line having first and second ends slidably disposed in a fourth longitudinally extending passageway, the second end of the control line being affixed to the second end of the formable shaft.

4. The system of claim 1 further comprising a fifth longitudinally extending passageway and a valve in fluid